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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,368	12/12/2003	Charles Stanley Aldrich	2003-0377.02	1810
21972	7590	10/14/2005		
LEXMARK INTERNATIONAL, INC. INTELLECTUAL PROPERTY LAW DEPARTMENT 740 WEST NEW CIRCLE ROAD BLDG. 082-1 LEXINGTON, KY 40550-0999			EXAMINER FIDLER, SHELBY LEE	
			ART UNIT	PAPER NUMBER
			2861	

DATE MAILED: 10/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/735,368	<b>Applicant(s)</b> ALDRICH ET AL.	
	<b>Examiner</b> Shelby Fidler	<b>Art Unit</b> 2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☒ Claim(s) 11 and 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/12/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/12/2003</u> . | 6) <input type="checkbox"/> Other: ____.  |

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**With regards to claim 9**, line 1 recites “print data being printed at said carrier velocity,” which is unclear in the context of the claim since printing rates are typically described in characters, lines, or pages per unit of time. Clarification is required.

***Claim Rejections - 35 USC § 102***

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 6, and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Vega et al. (US 6554392 B2).

**With regards to claim 1**, Vega teaches a method of performing printhead maintenance through the firing of an ink jet printer (col. 1, lines 7-9) that has a printhead carrier for ink jet printhead transport (col. 5, lines 30-31), and a waste ink receptacle (col. 3, lines 10-11). The method comprising the steps of:

decelerating the printhead carrier from a first velocity after printing print data (col. 7, line 36-37); and

controlling a firing of the printhead during said deceleration in accordance with maintenance data (col. 7, lines 33-37) so that ink droplets ejected from the printhead during deceleration are received by a waste ink receptacle (col. 3, line 44-45).

**With regards to claim 2**, Vega teaches appending maintenance data to print data for a particular printing swath pass, resulting in the serialization of the data to a printhead (col. 7, lines 34-35).

**With regards to claim 6**, Vega teaches a waste ink receptacle positioned at a fixed location (col. 10, lines 55-58. Also in col. 10, lines 23-25, Vega recites that the printhead stops over a receptacle at the end of a right to left pass, requiring that the receptacle be positioned in a fixed location).

**With regards to claim 7**, the length (L) of the waste ink receptacle is expressed in terms of the formula:

$$L = \frac{D_{gap}}{V_d} * V_c + \frac{N}{Dpi},$$

where  $D_{gap}$  = gap distance from the printhead to a surface of the waste ink receptacle;

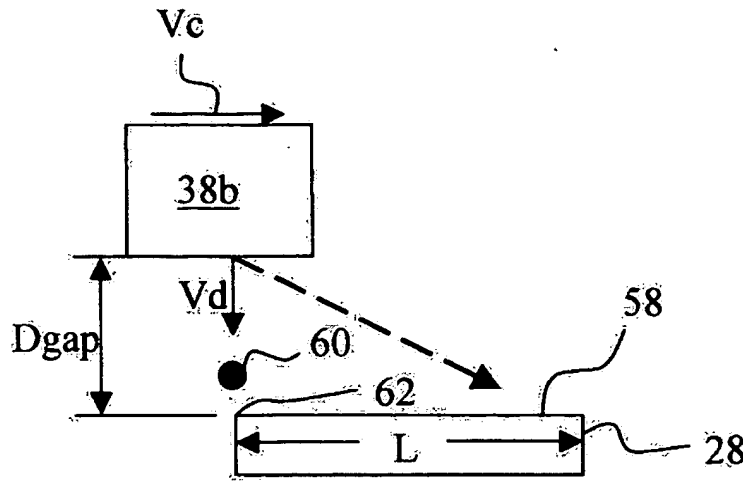
$V_d$  = droplet velocity of ink droplets ejected from the printhead;

$V_c$  = carrier velocity of the printhead carrier;

$N$  = number of spit fires per nozzle; and

$Dpi$  = resolution.

This formula recites nothing more than the deposition of ink over a given length, similar to ink deposition on a recording medium used in conventional printing. From the specification and drawings submitted by applicant, Figure 2B shows:



Introducing variables that are inherent to any incremental ink jet printing apparatus:

$S_d$  = distance droplet falls;

$S_c$  = distance moved by carriage;

$t_d$  = time required for droplet to fall distance of  $D_{gap}$ ; and

$t_c$  = time required for carriage to move distance of  $S_c$ .

If  $V_d$  and  $S_d$  are known to follow the relationship between distance and time,  $V = \frac{S}{t}$ , and

the droplet falling occurs over an identical time interval as the carrier moving ( $t_d = t_c$ ), then

$S_c = V_c * t_c = V_c * t_d = V_c * \frac{S_d}{t_d}$ , which is identical to the length equation set forth by the

applicant, where  $S_c$  and  $S_d$  may be substituted with their equivalents  $L$  and  $D_{gap}$ , respectively.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-5, 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vega in view of Fukasawa et al. (US 6830311 B2).

**With regards to claim 3**, Vega does not explicitly teach a timing segment. Fukasawa discloses a timing segment interposed between the print data and the maintenance data (col. 6, lines 18-22 teach a flushing control unit that takes time to move the recording head to the flushing area after printing the print data, implicitly teaching a timing segment).

**With regards to claims 4 and 12**, Vega does not explicitly teach a timing segment. Fukasawa discloses calculating the data length of the timing segment based on a length of the print data (col. 6, lines 18-22 – Because ink is jetted in accordance with the print data, the length of the timing segment, or subsequent printhead movement, is dependent on the length of the print data).

**With regards to claims 5 and 13**, Vega does not explicitly teach a timing segment. Fukasawa discloses a timing segment composed of zeros data (col. 6, lines 18-22 – Because the recording head moves to the flushing area without ejecting ink, the timing segment is inherently composed of zeros data).

**With regards to claim 11**, Vega teaches a method of performing printhead maintenance firing in an ink jet printer (col. 1, lines 7-9) that has a printhead carrier that carries an ink jet

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printhead (col. 5, lines 30-31), said ink jet printer having a waste ink receptacle (col. 3, lines 10-11), comprising the steps of:

receiving print data in a form of print data segments (col. 5, lines 45-48 recites use of an electrical memory using binary segments of data);

accelerating said printhead carrier to a first velocity (col. 7, line 36);

decelerating said printhead carrier during said maintenance segment (col. 7, line 36); and

controlling a firing of said printhead during said deceleration in accordance with the maintenance data (col. 7, lines 33-37) so that ink droplets ejected from said printhead during said deceleration are received by said waste ink receptacle (col. 3, line 44-45).

Vega does not explicitly teach generating a timing segment, appending that segment, or serializing the data segments to the printhead. Fukasawa teaches generating a timing segment and a maintenance segment, appending said timing segment and said maintenance segment to said print data segments, and serializing said print data segments, said timing segment, and said maintenance segment to said printhead (col. 6, lines 18-22).

**With regards to claim 14**, Vega does not explicitly teach a timing segment. Fukasawa inherently teaches serializing printing data segments and timing segments to the printhead when the carrier is moving at a first velocity.

**With regards to claim 15**, Vega teaches the waste ink receptacle is positioned at a fixed location (col. 10, lines 55-58. Also col. 10, lines 23-25 recite that the printhead stops over a receptacle at the end of a right to left pass, requiring that the receptacle be positioned in a fixed location).

**With regards to claim 16**, the claim is subject to the same arguments as those set forth in claim 7.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine Vega's invention with Fukasawa's timing segment. The motivation for doing so, as taught by Fukasawa, is to move the printhead to the flushing area for flushing (col. 6, lines 19-20).

Claims 8, 10, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vega in view of Fukasawa as applied to claims 1 and 11 above, and further in view of Hamamoto et al. (US 6631976 B2).

**With regards to claims 8, 10, 17, and 18**, Vega and Fukasawa do not explicitly teach the receptacle positioned outside the print zone to an edge of a sheet of print media. Hamamoto discloses a waste ink receptacle being positioned at a predetermined location outside a print zone of said ink jet printer, and positioned in relation to an edge of a sheet of paper (prefire area 439, Figure 50).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify Vega and Fukasawa's invention with Hamamoto's receptacle positioning. The motivation for doing so is to keep the purging ink from marking the media.



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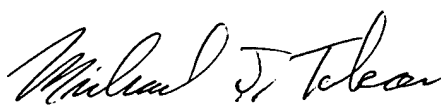
***Claim Objections***

Claims 11 and 14 are objected to because of the following informalities: claim 11, line 8, and claim 14, line 3 recite "first velocity" when no additional velocity has been disclosed.

Appropriate correction is required.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SLF

  
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